

What is claimed is:

1. An optical coupler comprising:  
an optical element having a flat side and a convex side;  
a detector spaced from the convex side of the optical element; and  
an optical fiber positioned adjacent to the flat side of the optical element, wherein said optical element is adapted to direct light delivered by the optical fiber to the spaced detector such that light that is reflected by the detector does not substantially couple back into the optical fiber.
2. The optical coupler of claim 1 wherein the optical element is adapted to produce at least a partial annular shaped light pattern on the detector.
3. The optical coupler of claim 2 wherein the optical element is adapted to produce an annular light pattern on the detector.
4. The optical coupler of claim 1 wherein the optical element includes a focal point and the detector is positioned relative to the optical element such that the light from the optical element is not defocused on the detector.
5. The optical coupler of claim 1 wherein the optical fiber abuts the flat side of the optical element.
6. A light transmission system comprising:

an optical element having a first surface and a second surface;

an optical medium having an end adjacent the first surface of the optical element, the optical medium having an index of refraction that is substantially similar to an index of refraction of the optical element; and

a detector spaced from the second surface of the optical element;

wherein said optical element conveys light from the optical medium to the detector, the optical element producing a light pattern on the detector that has a substantially reduced light intensity near the center of the light pattern.

7. A light transmission system of claim 6 wherein the light pattern is an annular shaped light pattern.

8. The light transmission system of claim 6 wherein the end of the optical medium abuts to the first surface of the optical element.

9. A system for transmitting light from a light source to a detector comprising an optical element positioned between the light source and the detector for directing light from the light source to the detector, the optical element configured to create an annular illuminated region on the detector with a substantially non-illuminated center.

10. A system according to claim 9 wherein the light source includes an optical fiber.

11. A system according to claim 10 wherein the optical fiber abuts to the optical element, and the optical fiber includes a core that has an index of refraction that at least substantially matches an index of refraction of the optical element.

12. A system according to claim 9 wherein the light source includes a Light Emitting Diode (LED).

13. A system according to claim 9 wherein the light source includes a Vertical Cavity Surface Emitting Laser (VCSEL).

14. A light transmission system comprising:  
a light source;  
a detector; and  
an optical element positioned between the light source and the detector;  
wherein the optical element is configured to direct more than half of the light that is transmitted from the light source to the detector, and to direct less than half of the light that is reflected by the detector back to the light source.

15. The light transmission system of claim 14 wherein the optical element is configured to produce an annular light pattern on the detector.

16. The light transmission system of claim 14 wherein said optical element has a focal point that is in front of the detector.

17. The light transmission system of claim 14 wherein said optical element has a focal point that is behind the detector.

18. The light transmission system of claim 14 wherein said optical element comprises a lens that is shaped to produce an annular light pattern on the detector.

19. The light transmission system of claim 18 wherein the lens has a plano-convex shape.

20. The light transmission system of claim 14 wherein said light source includes an optical fiber.

21. The light transmission system of claim 14 wherein said light source includes a laser.

22. The light transmission system of claim 14 wherein said light source includes a Light Emitting Diode (LED).

23. A method for providing light from a light source to a detector, the method comprising:  
providing light from a light source; and  
directing light from the light source to the detector such that light that is reflected by detector is not substantially coupled back to the light source.

24. The method of claim 23 wherein the directing step directs light from the light source and produces a light pattern on the detector that has a substantially reduced light intensity near the center of the light pattern.

25. The method of claim 24 wherein the directing step directs light from the light source and produces an annular shaped light pattern on the detector.

26. The method of claim 23 wherein the directing step directs light from the light source to a focal point that is located in front of the detector.

27. The method of claim 23 wherein the directing step directs light from the light source to a focal point that is located behind the detector.